United States
Environmental Protection
Agency

EPA Grants Exemption

Environmental Disposal Systems
Romulus, Michigan March 2004

Contact EPA

If you have questions or comments concerning EPA's decision you may contact these EPA employees:

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More information

Documents concerning the EDS well proposal, including the latest *Federal Register* notice granting the exemption, are available for viewing at:

Romulus Public Library
11121 Wayne Road

Taylor Community Library
1203 Pardee Road

Henry Ford Centennial Library
16301 Michigan Ave.
Dearborn

Online at:

www.epa.gov/region5/water/uic/pubpdf/factsheet.pdf

www.epa.gov/region5/water/uic/pubpdf/eds_rtc.pdf

U.S. Environmental Protection Agency Region 5 has determined that a Michigan company can safely dispose of hazardous waste in deep wells in Romulus, Mich. Based on an extensive review of a petition by Environmental Disposal Systems Inc. (EDS), EPA determined that the waste will stay confined to a layer of rock deep underground and will not threaten human health or the environment. As a result, EPA will allow the company to operate what are known as Class I injection wells. The company wants to accept hazardous waste from other businesses and inject it into two deep wells already built near Citrin Drive in Romulus. The Michigan Department of Environmental Quality must still issue a hazardous waste operating license before EDS can actually begin using the wells.

EDS met demanding standard

Under the federal Resource Conservation and Recovery Act, the land disposal of certain hazardous waste is banned. But the law allows exemptions where the disposal is protective of human health and the environment. For deep well injection, the requesting party must demonstrate "to a reasonable degree of certainty" that the waste will not migrate from the disposal unit or injection zone for as long as it remains hazardous. Under the regulations, the petitioner must show that reliable predictions can be made that injected fluids will not migrate above the injection zone or come into contact with underground sources of drinking water for at least 10,000 years. EPA concluded that EDS met the demanding requirements for an exemption. The exemption exempts the injection from the land disposal restrictions only.

EPA verified test results and computer simulations done by the company. Scientists specializing in geology and computer modeling from the U.S. Geological Survey and the Lawrence Berkeley National Laboratory reviewed the data and computer modeling and agreed that the demonstration meets all the requirements for an exemption. In addition, EPA carefully considered more than 600 public comments and revised the exemption based on those comments.

Waste will stay put

The burden was on EDS to demonstrate to EPA that the hazardous waste it was planning to pump into the Earth wouldn't move out of the injection zone. Geologists closely studied the layers of rock lying underneath Romulus. They not only made borings to get the actual rock samples but also pumped water into the wells to measure the rock's ability to contain waste. They also used computer simulations to predict where the waste would move over time.

The injection zone – the underground layer where the waste will be pumped – is between 3,369 feet and 4,550 feet below the surface. To put that depth in more visual terms, that's the length of 12 football fields stacked end to end. Not only is the injection zone extremely deep, but it is also "capped" by a layer of dense rock that makes a watertight cover over the injection zone. If the waste should somehow breach that cap layer, there is yet another level of rock that serves as a safety buffer. In contrast to the cap layer, this layer does hold liquids and would allow the waste to spread out harmlessly before coming close to the surface.

Using computer simulations, scientists learned the waste would rise only 10 feet (from the injection point) during the 20 years EDS plans to operate the wells. Scientists concluded that in the next 10,000 years, the pool of hazardous waste would only rise 227 feet. The 10,000-year period was simulated because after that time span, the waste will no longer be harmful.

Instead of moving upward, the waste is projected to move horizontally in all directions away from the EDS wells within the rock layers into which it will be injected. However, a nearby company, Sunoco Partners Marketing and Terminal LLC (SPMT) plans to use the same layer to dispose of brine and that will cause the waste to be pushed toward the southwest – at the most three and a half miles over 20 years. Over 10,000 years, the waste is calculated to move up to 10 miles in a south-southeasterly direction.

The nearest source of underground drinking water would still be more than 200 miles away.

Injecting hazardous waste deep underground is a proven way of environmentally protective disposal. Since underground injection control regulations have been in place, there have been no failures of wells resulting in contamination of underground sources of drinking water.

Well casings tested

In addition to geology, EPA also examined how the EDS wells were constructed. In the most recent test in November 2003, the sealed space between the wells' casing and tubing was pressurized for a leak check. In another experiment in June 2003, a radioactive tracer was used to test for leaks along the well bore outside the casing. No leaks were found in either trial. The wells are set up with alarms and will be continuously monitored for leaks. The well casings will also undergo a thorough exam once a year during their 20-year operation.

Scientists also say Romulus rarely experiences earthquakes – the last one was in 1980. EPA is satisfied the well casings are flexible enough to absorb serious tremors.

EPA considered extraction well, too

EDS originally asked for an exemption in January 2000. EPA announced in November 2002 it was prepared to approve the exemption. But the decision-making process was extended last summer after the

state of Michigan issued a permit to SPMT which allows it to pump brine from several formations, including the formation into which EDS wants to inject waste. EPA extended its review to look at the effect of the SPMT permit on the demonstration.

Based on the language of the permit, as qualified by state litigation and approvals, EPA can reliably predict that SPMT will not extract from the injection zone if EDS injects into that zone. Extraction from the shallower formation will not affect EDS' demonstration. EPA has made the exemption conditional: it will automatically terminate if SPMT begins extracting from the injection zone.

EPA responds to public comments

Given the high level of concern about the injection wells, EPA extended the public comment period twice and held two open hearings last year. EPA received hundreds of comments and has carefully reviewed and responded to them in summary form. EPA considered only the scientific criteria surrounding the injection wells. Other public concerns such as transportation of the hazardous waste and local acceptance fell outside EPA's review.

A public hearing was held on January 8, 2003. When EPA realized some background documents were not available locally prior to the hearing, EPA extended the comment period to May 16, 2003, and held a second public hearing on April 21, 2003. In May 2003, Michigan DEQ issued a permit to SPMT and EPA extended the comment period to October 6, 2003.

In the near future, EPA will publish a notice in the *Federal Register* that outlines in great detail the exemption, the demonstration and the conditions under which EDS may operate its wells.

EPA Grants Exemption to Romulus Injection Wells

Agency Makes Decision on Petition

Determined hazardous waste will not threaten humans or the environment

(see inside for details)

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Romulus, Michigan: Wells Get OK